



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

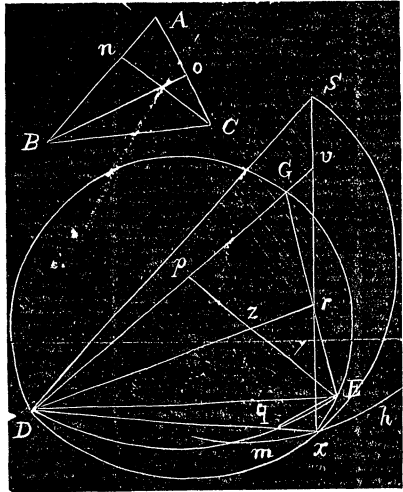
GEOMETRICAL SOLUTION OF PROB. 126. (P. 188, VOL. III.)

BY PROF. W. P. CASEY, SAN FRANCISCO, CAL.

*Analysis.* Let  $ABC$  be the required  $\triangle$ , the bisectors  $Bo, Cn$  of the ang's  $B$  and  $C$  are given, and the vertical angle  $A$ , to construct the triang.  $ABC$ .

Take  $DE$  a given line  $= 2Cn$  say, and upon it describe a segment of a circle  $DGE$  containing an angle  $= BAC$ ; this segm't is  $\therefore$  given in position and magnitude. Conceive the  $\triangle DGE$  to be similar to the  $\triangle ABC$ , and bisect the angles  $D, E$ ;  $\therefore$  the ratio of  $Dr : Ep$  is given being the same as  $Bo : Cn$ .

Make angle  $EDS = Ezr$ , which is a given angle (being half of the supplement of angle  $G$ ),  $\therefore DS$  is in posit'n. Draw  $rS$ , making the angle  $DrS =$  the angle  $EpD$ , and  $\therefore$  the angles  $DEp$ ,  $DrS$  are similar and  $ED:DS::Ep:Dr$ , in a given ratio, and  $ED$  is given;  $\therefore DS$  is given and  $S$  is  $\therefore$  a given point.



Produce  $DG$  to  $v$  and draw  $Dx$  making angle  $vDx = EDS = Ezr$ , a given angle, and produce  $Sr$  to meet  $Dx$  in the point  $x$ ; and as angle  $DrS = Epd$ ,  $\therefore Ezr = rvp$  = a given angle (the quadrilateral  $vpzr$  is inscribable in a circle), and as  $vDx$  is a given angle,  $\therefore Dzv$  is a given angle, and the line  $DS$  is given in position and magnitude;  $\therefore$  the seg't  $DxS$  is given.

Draw  $Eq$  making angle  $DEq = DSv$ , and as  $EDS = vDx, \therefore \text{ang. } SDv = EDq$ ; hence the  $\triangle$ s  $DSv, DEq$  are similar, and  $\therefore \text{ang. } DqE = DvS$  a given angle;  $\therefore$  as  $DE$  is given, the segment  $DqE$  is given in position and magnitude. Now  $SD : DE :: vD : Dq$ , that is, in a given ratio, and the ratio of  $vD : Dx$  is also given (as the  $\triangle Dvx$  has all its angles given);  $\therefore$  the ratio of  $Dx : Dq$  is given and  $D$  a given point, and  $q$  on the circumf. of a given circle;  $\therefore$  the locus of  $x$  is a circle,  $mzx$ , given in position and magnitude. (See Chauvenet's Geom., p. 314.)  $\therefore$  the point  $x$  is given, and  $Dx$  is in position; and the angle  $xDv$  being given,  $Dv$  is in pos'n when the point  $G$  is given;  $\therefore$  the  $\triangle DGE$  is given and hence  $\triangle ABC$  is given.

The construction follows readily from the analysis; but the calculation of the sides is rather long.